WHAT IS CLAIMED IS:

1. A method of making a heterogeneous building block array, the method comprising:

forming a plurality of spots on a solid support, the spots comprising a plurality of building blocks; and

immobilizing building blocks to the support in the spots by covalent coupling, by an ionic interaction, or by a combination thereof.

2. A composition comprising:

a support; and

a portion of the support comprising a plurality of building blocks;

building blocks being immobilized on the support by covalent coupling, by an ionic interaction, or by a combination thereof.

3. A composition comprising:

a support; and

a portion of the support comprising a plurality of building blocks;

building blocks being immobilized on the support by covalent coupling, by an ionic interaction, by hydrophobic interaction, or by a combination thereof.

4. A method of making a heterogeneous building block array, the method comprising:

forming a plurality of spots on a solid support, the spots comprising a plurality of building blocks; and

immobilizing building blocks to the support in the spots by covalent coupling, by an ionic interaction, hydrophobic interaction, or by a combination thereof.

5. A method of making an array comprising reversibly immobilized building blocks, the method comprising:

forming a plurality of spots on a solid support, the spots comprising a plurality of building blocks;

reversibly immobilizing building blocks on the solid support in the spots.

6. A composition comprising:

a support, a functionalized lawn, and a plurality of building blocks;

the functionalized lawn being coupled to the support;

building blocks being reversibly immobilized on the lawn.

7. An article of manufacture comprising:

a support, a functionalized lawn reagent, and a plurality of building blocks;

the functionalized lawn being configured to be coupled to the support;

the plurality of building blocks being configured to be reversibly coupled to the lawn.

8. A method of using an artificial receptor comprising:

contacting a reversibly immobilized heterogeneous molecular array with a test ligand;

the array comprising:

a support, a functionalized lawn, and a plurality of building blocks;

the functionalized lawn being coupled to the support;

a plurality of regions on the support;

the regions comprising a plurality of building blocks; and

the plurality of building blocks being reversibly immobilized on the lawn;

shuffling building blocks in one or more regions;

detecting binding of a test ligand to one or more regions; and

selecting one or more of the binding regions as the artificial receptor;

wherein the building blocks in the array define a first set of building blocks, and the plurality of building blocks in the one or more binding regions defines one or more selected binding combination of building blocks.

9. A method of using an artificial receptor comprising:

contacting a first reversibly immobilized heterogeneous molecular array with a test ligand;

the array comprising:

a support, a functionalized lawn, and a plurality of building blocks;

the functionalized lawn being coupled to the support;

a plurality of regions on the support;

the regions comprising a plurality of building blocks; and

the plurality of building blocks being reversibly immobilized on the lawn;

exchanging building blocks onto or off of the support;

detecting binding of a test ligand to one or more regions; and

selecting one or more of the binding regions as the artificial receptor;

wherein the building blocks in the array define a first set of building blocks, and the plurality of building blocks in the one or more binding regions defines one or more selected binding combination of building blocks.